

Prebiotic Fibre: Fueling the Production of Beneficial Bacteria



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From a dietary perspective, protein and fibre are the primary influences on microbiome health. The benefits dogs and cats derive from different fibre sources will be determined specifically by the characteristics of the fibre they are fed and the bacterial species that ferment that fibre.

What effects do prebiotic fibres have on gut health? Here's a snapshot of how they work, the benefits they can confer on the microbiome and the types of patients who could benefit from prebiotic intake.

What are prebiotics and how do they work?

Prebiotics are often referred to as the "fuel" or "food" for beneficial bacteria. They are nondigestible and selectively fermented by beneficial bacteria in the colon, where they help support the growth and activity of health-promoting bacteria in the gastrointestinal (GI) tract.¹

These beneficial bacteria produce **short-chain fatty acids (SCFAs)**, which have positive effects on gut health, such as **helping protect the mucosal epithelium and mucosal barrier, promoting immune function and combating inflammation.**²

Intestinal cells use SCFAs, especially butyrate, as an energy source for

colonocytes.¹⁻³ This enables the intestinal cells to grow and multiply, which helps to maintain the intestinal barrier function and inhibit the growth of pathogenic bacteria.¹⁻³ When fermented by beneficial bacteria, Inulin –found in certain pet foods such as Purina® Pro Plan® Veterinary Diets EN Gastrointestinal™ canine dry formula, is an excellent substrate for producing butyrate.

Psyllium, found in Purina Pro Plan Veterinary Supplements FortiFlora PLUS, is a soluble and slowly fermentable fibre source with prebiotic effects. Fibre derived from psyllium has a high water-holding capacity that may help promote normal stool quality in pets.⁴⁻⁶

Which patients could benefit from prebiotics?

Patients with conditions such as acute or chronic large intestinal diarrhoea could benefit from prebiotic supplementation to regulate intestinal motility, reduce inflammation and allow beneficial bacteria to compete with potentially harmful gut bacteria. Purina® Pro Plan® Veterinary Diets EN Gastrointestinal™ Canine Formulas each contain a select prebiotic fibre to support GI microbiome balance and digestive health.

Do prebiotics benefit healthy patients?

Fibre supplementation can be beneficial for promoting a healthy microbiome, regardless of health status. Not only can healthy pets benefit from supplemental fibre in their diet to **improve stool quality**, but prebiotics also help pets **maintain intestinal health**.

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However, anytime we supplement a diet with fibre, we must ensure the pet can tolerate the fibre that's being supplemented. Some animals tolerate added fibre very well while others do not. This intolerance can be a result of short-chain fatty acid production from fermentable fibres and subsequent osmotic effects in the gut.

Total dietary fibre versus crude fibre

Current guidelines from FEDIAF require pet food companies to include the amount of crude fibre in a diet on the packaging. However, some pet food companies have recognised that total dietary fibre offers a better representation of the types of fibres present in a diet.

A crude fibre analysis is the measure of insoluble fibre contained in the diet, but not all of the insoluble fibre in it. Total dietary fibre includes insoluble fibre and most of the soluble fibre content, and provides a more complete and accurate picture of a diet's fibre profile. Product guides from various companies may provide this additional fibre analysis; if

not, veterinarians can contact pet food makers to determine if additional fibre analysis information is available.

Ascertaining exactly what types of fibre in what amounts are present in a diet will help you make informed nutritional recommendations that can help promote a healthy microbiome in your patients.

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Key Takeaways

- Implementing strategies to improve GI microbiome health is a vital component of managing patients with chronic enteropathies.
- All strategies that reduce GI inflammation—with the exception of antibiotic use—can be associated with recovery of the microbiome.
- Prebiotics help support the growth and activity of beneficial bacteria in the GI tract. These beneficial bacteria produce short-chain fatty acids, which help protect the mucosal epithelium and mucosal barrier, promoting immune function and combating inflammation.

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TARGETED MICROBIOME SUPPORT FOR GI HEALTH AND BEYOND

A healthy microbiome can impact a pet's overall health. That's why we've spent decades exploring microbiome science. From diets with specific prebiotic fibers to support digestive health to supplements that support dogs with diarrhea, calm behavior, or immune health, **we're dedicated to helping you improve your patients' lives in new ways.**

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